THE VETERINARY RECORD

A Weekly Journal for the Profession.

EDITED BY WILLIAM HUNTING, F.R.C.V.S

No. 271. SATURDAY, SEPTEMBER 16, 1893. VOL. VI.

THE OPENING OF THE SCHOOLS.

Of the four veterinary schools in Great Britain three are now open. The London School is still closed. The opening this year is a month earlier than usual and many persons will doubtless ask the reason for the new departure. It will he remembered that a few months back a conference was held of delegates from the Council of the Royal College of Veterinary Surgeons and from the Royal Veterinary College; the subject considered was the time of commencing and finishing the terms and the time for examinations.

A very large majority of the conference, recognising the importance to students of seeing the greatest amount of such practice as cannot be shown at a school in a town, agreed that it would be well if all the schools could close not in May but in April, so that the students could get away to the country. It was decided to obtain the opinion of the Scotch Schools before proceeding further, and the Council consequently applied to them and obtained a favourable reply. The Scotch Schools and the Council of the R.C.V.S. acted in harmony with the object of benefitting the students. The Royal Veterinary College, for some reason, has not acted with the others and will not open till October. This is very unfortunate, for if the session is of the same length at all the schools it will be impossible for all to close at one time—a time most convenient for the students to meet the examiners. It seems more than a pity that some uniformity cannot be attained. All parties desire nothing but the good of the student and the advancement of the profession. None will deny that uniformity, at least in the times of teaching and examining, is desirable. Where is the difficulty? There are no self-interests concerned. The question seems to be one requiring only knowledge—knowledge of the requirements of *veterinary* students.

VETERINARY TECHNICAL TEACHING.

We are quite at one with our correspondents who think that a County Council should not attempt to teach the practice of veterinary medicine and surgery. We say *attempt* because it is impossible to achieve. It requires four sessions at college to make a veterinary surgeon, and we fancy that even then the newly fledged graduate is not the man who would be selected even by a provincial County Councillor as best fitted to treat a valuable hunter or pedigree stock. No sane man can possibly expect that a short course of lectures embraced in a few weeks, with perhaps half-a-dozen illustrative cases, is sufficient to enable an amateur to diagnose, let alone treat, any illness.

The advertisement of the Dorset County Council which has given rise to such vigorous protests must be misunderstood. Possibly the wording of the advertisement is defective or it may be that the authorities have not quite expressed the spirit of their requirement. We shall not believe that any public body really expect to obtain the services of a veterinarian for the purposes our correspondents suppose. "First Aid," general principles, sanitary and hygienic guides, the laws of heredity and such matters may be treated most lucidly and beneficially in a course of technical lectures, but the *Art* of medicine and surgery never. If the County Council care to make their position clearer we shall have great pleasure in publishing the syllabus of their proposed course of teaching. Meantime we trust that any gentleman offering himself for the place will take care he does not promise more than he can perform.

RESIGNATION OF PROFESSOR AXE.

The profession will hear with regret that Professor Axe has severed his connection with the R.V.C.

During the quarter of a century in which Professor Axe has helped to form the raw material into the skilled practitioner he has made a very large circle of friends, and has established a reputation which leaves him second to no one in the profession.

We very much regret that the institution has lost so good a man, but we trust the Professor has not decided to forsake practice. For some years he has been attracted by the charms of farming, but we may hope that his skill and experience may still be available to all who wish to consult him.

DR. W. C. W. HEATON.

With very great regret we notice the announcement of the death of Dr. Heaton. He was Lecturer on Chemistry at Charing Cross Hospital, and for many years Examiner on Chemistry for the Royal College of Veterinary Surgeons. Dr. Heaton has been in failing health for some time, and at the examinations in Edinburgh last year became so seriously ill that he had to retire from the Board and return home. The state of his health was the reason of his not retaining his position on our Board where he was highly valued by the Council and esteemed and trusted by the students. His loss will be keenly felt by all his colleagues and those who knew him, for he was a sound scientific man and a genial companion.

CASES AND ARTICLES

MECHANICAL LAMENESS IN HORSES, OR CONTRACTED TENDONS *v.* PATTEN SHOE.

By T. Greaves, F.R.C.V.S.

I read with much interest the case of contracted tendons and spavin in a horse, recorded in *The Veterinary Record* of August 12th, page 97, I noticed that different veterinary surgeons held different opinions as to whether such animal was suffering pain whilst working, and whether such pain amounted to cruelty. I also read the editorial in the same journal, and the other communications on the subject in subsequent issues of the same journal. The expression of these opinions excited within me a renewal of opinions I have entertained and acted upon for over half a century. In 1834 my predecessor, with whom I served my apprenticeship, was in the habit of using the patten shoe in these kind of cases, and he was at some pains in explaining to me their utility, I have continued to use them ever since, at the present time my firm (Greaves, Faulkner and Jones) have dozens, perhaps scores of horses working regularly slow work in comfort in the streets of Manchester with patten shoes on, and that such horses could not work at all, *or only in pain and suffering without them*. The opportunities I have had of observation are many, the opinions I have formed have been formed from practical experience, a rather extensive experience when I say we are in the habit of shoeing over one hundred horses per day in our forges, we have the supervision of all sick and lame horses of two other firms who shoe their own horses of over five hundred horses each.

If we observe a horse with contracted tendons when standing still, he is constantly easing the lame leg, standing on the toe of the foot of his lame leg, it is evident every time the weight is put on this leg and the heel is forced to descend to the ground he is put to pain, *sometimes to severe pain*. When standing in his stall if he can find a hole between the stones in his stall he is sure to have the toe of his foot of the lame leg in it. This fact ought to teach us a lesson.

We know these cases commence by the fibres of the back tendons being suddenly overstretched, commonly termed a sprained or strained tendon, it may be only slight at first, in this stage by rest and proper treatment a cure may be effected and be attended with only a very little lameness. But if this overstretching is repeated over and over and over again, whether the horse is engaged in slow or fast work, inflammation is set up and the horse becomes lame enough. Or the commencement may have been sudden and violent, the lameness and inflammation may have been severe from the first, not only the tendons, sheaths of tendons and the tissues surrounding the tendons, but also the suspensory ligament and the lower joint of the hock may become involved. The degree of contraction, the exudate enlargement, and the pain is always caused by and is in exact proportion to the degree of the inflammation. Perhaps hereditary predisposition may in some cases have a tendency to cause a weakness in these parts, but whenever contraction and enlargement has become established in these cases *treatment is unavailing*. You may bleed in the toe, give physic, have the leg in a tub of hot water two or four hours a day for days or weeks, or the cold water douche with the pipe for hours daily for days or weeks, then blister with cantharides, or biniodide of mercury, then fire over and over again and give four or six months rest, *but you can do little or nothing in reducing the enlargement or the contraction*. The horse may have improved in his lameness, but put him to work with ordinary shoes on and in a little time he will be as bad as ever again, simply because the weight of the horse is put upon this leg, the heel of the foot is forced to the ground, and the fibres of the tendons which are already in a chronic state of disease, is put on the stretch, new inflammation is set up, and a relapse of pain and lameness is a certain result. To my mind the inevitable conclusion is this; for anyone to make a horse work in this state, more especially if it is fast work—walking upon his toe without any properly adapted support under the heels of the foot, is causing *the infliction of unnecessary pain, and that such conduct is cruelty*.

The Patten Shoe is of Primary Importance.

When a patten shoe is properly adapted to the foot of a contracted leg the horse immediately feels the benefit of it, there are many other cases of lameness besides contracted tendons, or bone spavin, where the horse walks on his toe in which patten shoes will be found of very great benefit. He soon finds when he puts his weight on this contracted limb the heel is prevented descending to the ground, the fibres in the tendons are not put on the stretch, *and consequently no pain is inflicted*, the horse soon gains a confidence, he walks on boldly and without fear, I have frequently seen the horse start the load on his lame leg. I feel constrained to relate

An Incident which Occurred in my Practice.

Many years ago a horse belonging to the Lancashire and Yorkshire Railway had contracted tendons of one hind leg, he was a very nice horse, good in nature, a temperate worker, but being lame was put to the job of chaining up and assisting the heavy loaded lurries from Salford goods station up Bridge Street and John Dalton Street, Manchester, this he did for six or eight months to the entire satisfaction of everybody who saw him, even the Inspector of the Society for the Prevention of Cruelty to Animals often watched him, admired him, and was perfectly satisfied. One day he happened to break the patten off the shoe whilst in the midst of his work. Mark the consequence, after a few strides he came to a dead stop; no urging, no coaxing, no threats or even flogging could get him to stir, but by dint of sheer force, a number of men pushing him, almost carrying him, he was got into a side street on three legs, and there he stood until a smith was fetched who took the shoe off, got the patten welded on, put it on his foot again, the horse then tried it, and without whip, without urging, walked away, was hooked to the lurry, and on

he went with a will. Now I take it this settled the question without a shadow of a doubt.

The Essential in Making a Patten Shoe a Success.

In applying a patten shoe the great desideratum is having the height of the patten adapted exactly to the requirements of the case. To give the horse ease and comfort it must be fitted with the greatest possible exactness, the merest trifle will make all the difference to the horse; if the patten be a quarter of an inch too high it will often do more harm than good, if it is a quarter of an inch too short it fails to meet the case. It is our regular practice to see the horse walk before the shoe is touched, the smith who has to fit the shoe on sees him walk and judges what is the exact height required (of course we never have any toe on these shoes) he fits the shoe, puts it on with two or three nails, and sees him walk out again, if it is seen to be a little too high or a little too low it is taken off again and altered until it is exactly right.

As to a patten shoe increasing the tendency to contraction, I attach no fear or apprehension whatever of it doing anything of the kind.

The patten shoe being higher than the other shoe makes one leg longer than the other, and gives the horse the appearance of being lame, but this is more appearance than reality, look at the horse after using patten shoe a few months, He is improving in condition, he is not now nursing his leg, and continually shifting his position as he was always doing before; follow him to his stall, watch him again, you see he is no longer pottering about, feeling for, and trying to find the hole between the stones in his stall. No, that hole is not needed now, we see him he faces his manger, is getting on with his eating, the aching, torturing pain is gone.

VETERINARY SOCIETIES.

NATIONAL VETERINARY ASSOCIATION.

The Inspection of Animals intended for Food.

By Professor M'Fadyean, M.B., B.Sc., F.R.S.E.

Discussion, (*continued from page* 152).

Mr. Wolstenholme (Manchester): The necessity for the examination of meat is, I should think, apparent to all veterinarians. If it has not been apparent, what we have heard in this room from our country practitioners ought to make it apparent to everybody. From the words of the Lord Mayor I am pleased to hear that the public are now awakening themselves to the necessity of meat being examined, and not only to the necessity of meat being examined, but of meat being examined by someone who is acquainted with the diseases to which these animals that make meat are subject. We have been told this afternoon that animals suffering from every disease to which flesh is heir, are being dressed in the country—not eaten in the country, they know better than that; but are being sent to large towns for the consumption of the people in those large towns who eat these carcases. Do the wealthy and the educated eat them? No! the wealthy know what good meat is; the wealthy know where to buy good meat; and the educated also know. These carcases are sent to the large towns; they are bought by the cheap butchers, sold at a low price, and they are sold to people not living under the beautiful hygienic conditions of the country, but people living in what we call our Ancoats district—people herding together, the same as you bring fowls across from Ireland, people herding together worse than pigs in styes, people under the very worst hygienic conditions, where mothers have to breed children, and leave them after a month and go and work in factories all day long. This is the class of people who have the worst flesh meat; this is the class of people who are being supplied with milk from tuberculous cows. Of course the people in the country never see the effects of this meat; it is not likely that they should. They take good care to send it out of the country into the towns. They cannot afford the time and trouble to drive down from remote districts into Manchester and Ancoats and see the effects of eating black-leg flesh upon the delicate women working at a temperature of 80 degrees in factories, upon scrofulous children in close-confined houses, and in unhealthy atmospheres. Of course they do not see it; it is impossible that they should see it, but it is quite possible that they ought to be in their own minds able to follow these things to where they work their dire results. For some years, as a citizen of Manchester, I have been exercised in my mind as to the baneful influence, and the extent of that baneful influence on the working classes of our large towns. The mortality in some sections of our large towns is simply something alarming—something worse than alarming—almost criminal on the more educated portions of the country. I am very glad to see that in this city we are awakening to the importance of many of these things; we are knocking holes into these crowded districts, we are pulling down unhealthy dwellings, and in many ways improving the sanitary conditions of those who do so much work in the large towns. Just recently there seems to have been either crass ignorance or crass negligence as to the mode of milk supply to the people of these districts to which I am referring. I am delighted as a citizen of this city, that at last, not through public opinion, but rather through veterinary opinion, there has been someone appointed who has at least the qualification of being a veterinary surgeon. The majority of veterinary surgeons probably are not at once capable of walking an abattoir, they are not at once capable of taking 100 carcases, inspecting them, and pronouncing with any degree of accuracy as to their fitness or unfitness. But a veterinarian would not be long in making himself far and away above the inspectors who have been put over the meat markets of this country of ours. It is not very long ago that a microscopical friend of mine brought a piece of pork that he had purchased in the streets of Manchester which was crowded with trichinosis. It is said in this city that there is very little *trichina spiralis* in the human subjects. Only a few years ago I got hold of a piece of human flesh, and found it alive with *trichina spiralis*. It came from one of our dissecting rooms, so that there must be some *trichina spiralis* in the human, if on casual observation one detects it in that way. What is the use of an unqualified man inspecting meat who cannot detect tuberculosis? What is the use of unqualified men who do not know the use of the microscope, and could not tell what a *trichina spiralis* was if they saw it? You must look forward to veterinary surgeons in the near future occupying a different position in reference to this question. I do think it is a very wise thing that we should feel our own position in the matter, and not wish to take too much upon our shoulders. The Medical Officer of Health, I should say, is the man on whom the responsibility should rest of saying whether this is or is not a carcase fit for human food, but all wise men in this de-

partment will only lean to a trained and qualified expert. The position of the veterinary surgeon ought to be in all these cases to point out what is his opinion, and to give his reasons for that opinion, as to whether a particular carcase is fit or is not fit, and to leave it to those men whose duty it is to decide. Personally, I know of animals suffering from pretty nearly every disease to which animals are subject, being dressed and sent to the London market. With respect to anthrax, I cannot say I have known infected cattle sent to the London market, but I have the very best authority—the men who have sent them from the district where I was once an assistant. They tell me that they have sent animals that have died from splenic anthrax, that their carcases have been dressed and sent to the London market; flesh which, if any person dissected it, and he had a scratch upon his hand, in all probability would give him malignant pustule, or he might die within a very few hours from acute anthrax. This flesh, from such evidence as I have had, has been sent repeatedly to the London market. Is any man to say that, because he could not trace the actual mischief that these carcases wrought, there is no evidence that it did such mischief? Again and again we know that animals far advanced with tuberculosis are being cut up, the diseased portions are taken off, and the remainder is sent to the towns for consumption. Being lean and poor carcases, they are not eaten by the well-fed and well-housed, and without doubt it is an important factor in that horrible notoriety which the English race have for tuberculosis. Again, particularly with respect to Manchester, I with delight see the appointment of a special officer for the inspection of meat, which, I hope, will ere long be extended to milk. I hope that these men will have an acute eye to the surroundings in which meat and milk are kept. If you keep milk in a room to which people that are recovering from scarlet fever have access, what happens? The spread of scarlet fever broadcast over the land. If you have milk vessels in which the milk is to be placed, washed with water contaminated with sewage, and that sewage is contaminated by the excretions from typhoid patients, you spread typhoid broadcast. If you keep meat freshly killed in sheds into which untrapped drains have free access by means of their gases into that room, what may happen? At least you may have typhoid, you may have putrefactive changes, and the formation of ptomaines which shall produce diarrhœa and other diseases. I do think, if in Manchester we had had some expert of this kind, when we placed our dead-meat market next door to our night-soil establishment, he would have raised—or he ought to have raised—a very loud voice against any such association; so that, all taken together, we hail with delight the new advance which has been made in this city with regard to the inspection of meat and milk. I do hope that that advance will spread over the land until we have veterinary surgeons in every town of any importance as meat inspectors. Let that demand arise, and the colleges will give to the men special training to fit them for this particular and special vocation. I do not know that I have anything more to say, except that I am exceedingly pleased with the exhaustiveness of the paper, that largely inhibits discussion, and with the steps which are being taken to provide meat inspectors all over this country who have, at least, some qualification for that office. (Applause).

Mr. Robert Roberts: I have been inspector of meat for five years. I believe there is no crime more heinous than selling diseased meat. It is selling poison for human food, and that for the sake of greed. The law, I think, is now sufficiently stringent on that point, if properly carried out. It provides that the inspector appointed shall enter into any shop or slaughterhouse, or any place where he finds the flesh of an animal deposited for sale, or in preparation for sale; and then, if he suspects it, he may take it away before a magistrate, who shall examine it, and if the magistrate shall find it diseased, or unsound, or unwholesome, or unfit for food of man, the magistrate must have it destroyed. The question is the inspection. I think the inspection before slaughter is very necessary. While I was in office I used to go to the slaughterhouses, and to the place where animals were cleansed before slaughtering, and once I remember I found a lot of sheep affected with foot and mouth disease, and they were to have been slaughtered if I had not gone there to stop them. I have known another instance of several diseased carcases being offered for sale, and I have been the means of bringing offenders to justice. One man sold a jaundiced calf, or exposed it for sale—he was fined only £2 and costs; the man complained very much that he was dealt very hardly with. I remember one of the magistrates, who was a doctor, said: "I do not think your crime is a very light one. If some delicate women and children had partaken of it, it might have acted upon them in such a way as to have caused their death." The man was again caught selling the flesh of an animal that died from natural causes, and he had three months for that. I think that the meat inspection in the country is very defective, and there ought to be competent men to do it, men that understand the business thoroughly; and I say that nobody could do it so well as the veterinary surgeon. A very good suggestion was made by Mr. Hunting, namely: that slaughterhouses should be registered, or licensed, and that butchers should be licensed and registered. We find three classes of butchers—the first class I call highly respectable, straightforward, honest, and conscientious men; the second are men of pretty good standing, but they will take an advantage if they can get it; the third class of men will do anything, and will say anything, and I am sorry to say sometimes these people are backed by professional men to help them out of the case.

Mr. T. Hopkin: The essay says, with regard to the Jewish method of slaughtering cattle, "The priest or rabbi then takes a knife, with a long straight blade, and as sharp as a razor, and by means of a rapid sawing motion he severs all the textures of the neck down to the vertebral column." Now, according to the Jewish method, this has to be done with one stroke; there must be no sawing; it must be done in one clear movement, if the flesh is to be clean. The second movement of the knife is equivalent to slaughtering the meat unclean. Sometime ago this subject of killing came to the front in Manchester, and an attempt was made to prevent the Jews killing their animals according to their orthodox custom. There is no difference in their method of killing, as regards the pain inflicted, than there is in the way in which our sheep, calves, pigs, and lambs are killed. I quite agree with the essayist that these animals should be stunned before they are bled to death, and that we, if we speak on the subject with an united voice, will be listened to. The essayist, in dealing with the question of inspection after slaughter, says, "As previously mentioned, the safeguard afforded by a properly conducted inspection of the animals killed in the public abattoirs in any given locality may be to a large extent nullified by the importation into that locality of carcases from a town or district in which no proper inspection is carried out." It is not from the public slaughtering of cattle; it is from the country districts where our diseased meat comes into the large towns. A Scotch farmer said to me that scores of carcases at from 15s. to £1 go into a certain town from his district; thoroughly emaciated, worn out, tubercular cases. It is there where the weakness comes in, in the inspection of meat. We want the inspection not only that takes place in the towns, but also in the country districts. Mr.

McGavin suggested that the viscera should be sent. He did not look at the practical side of the question. It would be perfectly impracticable to send the viscera; and then as to foreign animals, how many millions of carcases come to this country? You would want another set of ships if you were to send all the viscera.

Mr. J. ARMSTRONG: I do not think it is right that the country people should be charged altogether with sending the diseased meat. I think there is a great deal to be said in connection with the dairymen of towns buying up the scraggy old cows that will give milk for a time, and then getting rid of them. That is how we get rid of a good deal of tuberculous cattle.

Prof. PENBERTHY: I should like to indicate my views on this subject, that it is the duty of veterinary surgeons to indicate to the special conservators of human life any diseased condition from which an animal may be suffering, and it is for the medical officer to deal with that afterwards. We waste our time, I think, by discussing such matters as whether the flesh of an animal suffering from tuberculosis, or parturient apoplexy, or any other disease, is fit for human food. We may as well expect a doctor to take charge of regulating the hay and corn, or inspecting the hay and corn that a horse may eat, as that veterinary surgeons shall be those who are to say in relation to food, whether it is fit or not for the consumption of man. We have a clear duty, but I think the most important function this meeting can exercise is to do all it can to press the necessity in the proper quarter for a general inspection of meat, and if they are asked the question, it is for them to say that that inspection shall be such that every means for discovering the diseased condition shall be adopted, and that there shall be some means of registering each carcase, which cannot, in any condition, be overlooked. The Royal College of Veterinary Surgeons have, by including in the new curriculum the subject of meat inspection, shown that they are going to do their part, at any rate, in providing inspectors fit to examine meat, from the point of view which I have just stated; and I think when we have done that, we must leave the matter in other hands, except to use every means, collectively and individually, of impressing on the British public the necessity for a general inspection, with fairness, especially to that part of the community to which Mr. Wolstenholme has referred—the poorer classes—of allowing them to have the article for which they pay. It is impossible for these classes, or any other lay class, to judge of the fitness of meat. It is the duty of the veterinary surgeon to take his share in determining the fitness; and, while it is illegal for a grocer to sell margarine and call it butter, it should be equally illegal for any person to offer the flesh of a carcase, however little, or however much, diseased, under any false pretence; and then, if there is a doubt in the mind of the medical officer of health, or other adviser, as to what condition is to be called dangerous to man, then that should be so labelled, or they may deal with it in any way they like. The subject is one in which I am very interested, and I hope the effect of this discussion will be to press it in the proper quarter, and to give as much publicity as possible to the fact that people send parturient apoplexy, and believe it to be good. If we simply do that we shall rouse the feelings of the public, who won't be bamboozled, if they can help it.

Mr. WARTNABY: Professor Penberthy has taken pretty well the words out of my mouth, but I do wish to ask this question, which seems to be a very delicate one, Who are the men who have to judge as to what is fit, and what is unfit, for food? If we were to reject all meat as unfit for food, it would be a very easy post for either a medical man or a surgeon; but don't you think you are doing the poor an injustice and an unkindness, if all meat is going to be rejected? I have seen beasts suffering from pleuro-pneumonia, and a piece of lung, and a piece of lung only, show with what it was affected. I have seen tuberculosis beasts which, to the ordinary eye, as driven through the streets, would not be suspected of having tubercle. Now, if you are going to throw all these beasts on one side, which I believe to be fit for food, and within the reach of people who can afford to give 4d. a pound, and cannot afford 8d. or 10d., are not we doing these people an unkindness in withholding it, that is, if gentlemen of authority tell us that no ill results follow? I do not agree that blackleg and other diseases are inocuous, but there are some cases of carcases which have been suffering from some disease in a very early stage, that I do not think we should do right to withhold from human food when there are so many starving poor in the world.

(*To be continued.*)

BACTERIOLOGY, WITH SPECIAL REFERENCE TO ANTHRAX.

By J. MCLAUCHLAN YOUNG, M.R.C.V.S.

(Read before the summer meeting of the Scottish Metropolitan V.M.A.)

Mr. President and Gentleman,—The subject I have the honour to bring before you this afternoon is one which is daily becoming of more importance, and is now recognised by the Royal College of Veterinary Surgeons as one of the essential equipments in the education of every veterinary practitioner. Bacteriology being a comparatively modern science its history is easily traced, and although the contagious and infectious nature of some diseases was known to the ancients, it was not until 1671 that the opinion was expressed that fevers and kindred disorders were directly caused by worms or other living organisms. It was at this time that Kircher, with the aid of crude lenses, was able to demonstrate the presence of numerous small mobile objects in decomposing matter, and it was with no idle curiosity that he sought for similar organisms in the tissues of diseased subjects. A few years later Leeuwenhoek — the father of the microscope—described extremely minute organisms in rain water and other substances, and for over one hundred years so many took up the study and pushed the germ theory to such an extent that the idea that diseases were due to living organisms did not meet with anything like a wide acceptance, but instead was discredited and held up to redicule.

Thus the study of this science was deserted by many and left in the hands of a few ardent believers, who, although to be admired for their sincere work, could make but little headway owing to the inadequate apparatus in use at the time and their limited knowledge of the peculiar behaviour of these invisible friends or foes. Since then microscopes of great power and special construction have been devised in order to render them distinctly visible, yet microscopical examination was quite inadequate to differentiate their morphological characters, and additional evidence had to be resorted to, viz., cultivation in suitable media. Although many practitioners may be able to make a fairly reliable microscopical preparation it is in the cultivation they fail, and this is not to be wondered at, for the technique is so claborate, and the danger of contamination by extraneous bacteria so great, that is requires the utmost care in the preparation of the media, and the most careful manipulation in the inoculation to be able to obtain and maintain what are known as pure cultures. I do not pretend to be able to give you an exhaustive paper on bacteriology, but I intend to briefly describe the various media and the apparatus requisite for the simpler cultivations, and then confine myself particularly to the cultivation and examination of the bacillus anthracis, the undoubted cause of

the much dreaded disease anthrax, or splenic apoplexy. I trust that the older practitioners will raise an interesting and instructive discussion on the symptoms, treatment and prevention.

It might be supposed that the cultivation of micro-organisms is an easy matter, and that a substance in which one will grow will serve for the growth and multiplication of another, but it is not so; and it is only by working in the light of past observers and by patient research that we are able to employ the most suitable media for the development of the various bacteria. The simplest and first medium used was an infusion of meat. Needham found that if such an infusion was boiled and placed in a well corked flask numerous animalculæ readily developed, but his explanation of this was that they originated spontaneously from the infusion. This was strongly opposed some time later, and one Bonnet maintained that the ova of the animalcules were present in the infusion or the air in the flask, and in this he was correct, for if the infusion was rendered sterile by boiling and sealed during the process no organisms were found growing. Thus it was proved that they were present either in the air, in the flask, or in the infusion itself, and that the meat infusion formed a suitable medium for their growth. But later the spontaneous theory was again triumphant, for it was found that in some cases, especially with milk and the infusion of hay, even although the substance was boiled and the flask sealed during the process, some bacteria grew in the medium. The triumph was, however, but short lived for those who were opposed to the spontaneous generation theory were ready with fresh arguments, and met this curious fact by stating that in boiling the time allowed was not sufficient to render strictly sterile the flask and its contents, for although the high temperature destroyed the bacilli themselves it had little or no effect on the spores, which are in all cases more resistant than the bacilli. The spores then being in contact with what was otherwise a sterile medium, grew and multiplied with great vitality; thus the meat infusion was the first and simplest medium employed.

At this point it might be asked how is it possible to sterilise any such substance if boiling only distroys the bacilli and not the spores. The answer is, repeat the boiling twice or three times, for in the interval between the boilings the spores have developed into bacilli and are killed at the next rise of temperature; therefore to sterilise any article it must be boiled or steamed for one hour on three consequtive days. Since the days of the meat infusion to the present time innumerable media have been manufactured and employed, and the bacteriologist of to-day has no easy task to cater for his guests, whose appetites are as variable and dissimiliar as those of mankind. I will now show you and describe some of the most common substances used for the cultivation of some of the various bacteria:—

Broth. Take one pound of the best steak, mince, place it in a well washed beaker and pour over one litre (1 1-3 pints) of distilled water. Put the beaker in ice, if in summer, or in a cool cellar if in winter, and leave it over night. Next morning stir it well and separate the liquid portion by filtering and squeezing through a linen cloth. Add distilled water to the filtrate thus obtained to bring it up to a litre, then add 10 grammes of peptone, an albuminoid soluble in water and not coagulable by heat, and five grammes of common salt. Now as the majority of organisms grow best in slightly alkaline media, the broth must be alkalified, and this is done by adding, drop by drop, a strong solution of carbonate of soda until a drop of the broth drawn off by a pipette gives a very faint blue reaction with red litmus paper. The white of an egg is now added to precipitate any floating solid matter, and the whole heated in the steamer for a quarter of an hour and, while hot, filtered through fine filter paper. The paper is folded in a peculiar manner being folded in divisions alternate ways until when opened out it presents a fan-like appearance. This rib filter, as it is called, is placed in a glass funnel and the hot liquid poured down the side or directed to the side by a glass rod. The flask and its contents is then sterilised in the steamer for half-an-hour on three consequtive days, and set aside in a cool place until required.

Nutrient jelly or gelatine. Prepared in the same way but with the addition of 100 grammes of gelatine. This forms what is known as a solid medium and is found very suitable for the growth of the anthrax bacillus.

Agar-agar. Is also a solid medium, and used in preference to gelatine where a high temperature is required for the growth of the bacillus, and it remains solid up to 45° C. The preparation is conducted on the same lines as the jelly, but 20 grammes of agar-agar or Japanese Isinglass is substituted for the gelatine.

Having prepared the broth, jelly and agar-agar it now remains to fill the test tubes, and this is a peice of work that must be carried out with the utmost care. for unless the tubes are scrupulously clean and thoroughly sterilised it will be impossible to obtain pure cultures. Take about 100 test tubes, wash them first in tap water containing hydochloric aid, then wash them repeatedly with distilled water, allow them to drip, and finally place in the oven to dry. Strip off the skin from a large peice of cotton wool roll it (the wool) up tightly, and sterilise in the oven for two or three hours. When the tubes are dry plug up their mouths with plugs of the wool and place them again in the oven for an hour when they will be ready for filling. Fill about two dozen with broth, and the same quantity with jelly and agar-agar, leaving the remainder for potatoes, egg, and other substances. The quantity required in each tube has no definite limit but usually we fill about a third of their depth, and in doing so care must be taken that no jelly or other medium comes in contact with the sides of the tube, for should this happen the plug sticks and causes no end of annoyance. The mixture having been exposed to the atmosphere in transferring it from the flask to the tubes must again be sterilised, and this is done by placing the tubes and flask in the steamer for a quarter of an hour.

Having now got the tubes ready the next proceeding is to inoculate them with the suspected blood, pus, or discharge, and here again care must be taken to prevent the contamination with aerial organisms. A platinum wire is heated in the flame of a spirit lamp until red hot and after allowing sufficient time for it to cool is charged with the suspected matter. The wool plug in the tube is singed in the flame and twisted out taking care to hold the tube mouth downwards. The tube is held between the thumb and fore finger, the plug between the third and fourth fingers. The table at which you are working should be damped with a sponge to keep down the dust sure to contain organisms of some kind, and after the tube is inoculated the platinum wire again heated in the flame to prevent the possibility of the germs getting abroad. The tubes are then placed in the incubator at a temperature of about 20 C. and left until they are to be examined.

Another method is the plate cultivation, and since the introduction of this process by Koch bacteriology has advanced by leaps and bounds, for it opened up an entirely new field since by this method liquids containing germs, water, air, and almost any substance can be examined and the different bacteria isolated, so that pure cultures can be prepared of each. It consists of spreading out the liquid jelly, previously inoculated, on the surface of a glass plate and allowing it to solidify. To do this a glass bowl filled with ice is covered by a sheet of glass and placed on a tripod which by means of screws can be raised and lowered at will. With the aid of a spirit level and the screws the sheet of glass is rendered level in all

directions. Take as many tubes as plate cultivations you intend to make and liquefy the gelatine by placing them in hot water, cool down to 25 C. and inoculate No. 1 from the suspected substance or from a cultivation on solid media. Inoculate No. 2 by six loopfuls from No. 1 and No. 3 by six loopfuls from No. 2 and so on. The next process is to pour the gelatine on the plates, and this is done by quickly raising the bell glass, which has been covering the sterilised plates, pouring the gelatine over the plate, replacing the bell glass and allowing the gelatine to solidify, after which the plate is transferred to a damp chamber and placed in the incubator at the required temperature. When a number of colonies have grown they can be counted by placing the plate under a large glass ruled into small squares, examinations, cultivations and inoculations can be made of the individual colonies, and in this way a thorough bacteriological examination can be made of any substance.

For the cultivation of anaerobic organisms, *i.e.*, those that will not grow in an atmosphere of oxygen, special tubes have to be employed. The simplest consists of inserting an ordinary gelatine test tube into a boiling tube containing a mixture of pyrogallic acid and caustic potash (1-10 p c.) which absorbs the oxygen from the air in the tube. Another and more effectual is prepared by fitting up a test tube like a wash bottle and passing a current of hydrogen through the tube.

Having now run over a few of the methods of cultivation I will briefly describe the staining of bacteria for microscopic examination. The most common stains are the aniline dyes, such as methyline blue, violet, green, and magenta; and the rapidity and intensity with which they colour the substance for which they have an affinity renders their employment easy to the inexperienced. However, the staining is not such an easy matter as one would suppose, for the substances lying round the germs are also dyed, and the difficulty is to distinguish them, so that we have to use such dyes as will stain the bacilli and not the tissues; or correctly speaking which will wash out of the tissues but not out of the bacilli. A little experiment will illustrate what I mean. Dye wool, stiched through a peice of calico, by imersion in a solution of magenta when on washing in water the colour is removed from the calico whilst the wool remains coloured. This is particularly the case with the tubercular bacillus which, when it has taken in the colour, fuchsin, will not part with it even although washed by the acidulated water.

Again there is another fact about bacilli which enables us to stain them without the surrounding tissues. Each is surrounded by a cell wall of cellulose which is for protection, and this is made use of in the following way: The cover glass preparation is exposed to the flame of a spirit lamp until the tissues are so scorched that they are no longer capable of being dyed, whereas owing to this protecting wall the bacilli are practically untouched and on applying the dye stain deeply.

To go further into the study it may be necessary to stain the spores, and as I have said before they are much more resisting than the bacilli so that it requires a much more penetrating dye to be used. To meet this, instead of the aqueous solution we use a solution of the dye in aniline water, and in this way we dye the spores. We now use some decolourising agent—dilute acid—and as the spores are the last to give up their stain we decolourise the tissues and the bacilli leaving the spores stained and then proceed to stain the bacilli some other colour the result being a most beautiful preparation. In some cases we have to use mordants to fix the dye and some of our friends refuse to take on any stain unless previously treated with the mordant Tannic Acid.

Now I will consider briefly the theory of anthrax. Anthrax is, as you all know, a blood disease, and in the majority of cases rapidly fatal; much to be feared owing to its extremely contagious nature, and the many ways by which man and the lower animals may become affected. It is undoubtedly the best known of bacillary diseases, owing to the fact that the bacillus is the largest of all, the most easily stained and cultivated, whilst the disease itself has been so long and exhaustively studied. As early as 1849, Pallender, and in 1856 Rayer and Davaine, demonstrated the bacillus in the blood of animals that had died from splenic apoplexy, and in 1859 Branell found the same bacillus in the blood of a man. The bacillus is one of the easiest to recognise, being rod-shaped with square cut ends, is from 5 to 20 m.m. long from 1 to 1·25 m.m. in breadth, and will take almost any stain. They are generally found in the blood, but have been seen in the discharges from the nostrils and eyes. The bacillus itself is delicate and easily destroyed, but under favourable conditions multiplies very rapidly, forming spores which are much more tenacious of life. The bacilli are killed by a two minutes exposure to a 1 p.c. solution of carbolic acid in water, whilst the spores may remain alive for more than a week in a similar solution. The spores resist the action of heat, cold, and comparatively strong disinfectants, and retain their virulence for a long time. The appearance of anthrax growing in gelatine or other suitable medium is very characteristic. All along the needle track the growth is seen to radiate towards the sides, and when the surface is reached a small nodule is formed which under a low power presents the wig-appearance so characteristic of this organism. This wig-like appearance is best seen in the colonies growing on the plates.

For the development of the bacilli and spores free access of air is necessary, but while putrefaction destroys the bacillus the spores will remain, without oxygen, alive though latent. Although no domesticated animal is exempt from its ravages, it is most frequently seen in herbivora, occurring in several forms, the most common of which is splenic opoplexy. The attack is sudden, the period of incubation being very short—twenty-four hours to three days—and the after course rarely extending more than three days. In the post-mortem examination the presence of the bacillus is necessary before we can positively state the cause of death, although the spleen by its size, colour, and broken down contents, and the blood by its colour and non-coagulable condition, are perfectly safe indications that the animal has died from anthrax.

The disease is transmissable from the lower animals to man, but for it to be communicated it is necessary for the bacilli or spores to gain entrance to the human circulation, and thus it is workers amongst hides, woolsorters, slaughterers and veterinary surgeons who are usually affected. It may be contracted by—(i.) Inoculation through some scratch or abrasion, generally on the hands or arms,—(ii.) Inhalation of the spores along with dust etc. (iii.) Consumption of flesh or milk. The last form is undoubtedly the most to be feared owing to the many opportunities by which it may be contracted, and it is thus of the utmost importance to be able to recognise the flesh of affected animals, for it is not uncommon for owners to dress the carcase and send it to the nearest market in ignorance of the true nature of the disease.

From a bacteriological point of view the blood offers the most satisfactory and positive proof. A drop of blood is placed on a cover glass, another glass placed on the top, and the two glasses gently pressed together. They are then slided, not lifted, apart. One is passed through the flame of a spirit lamp, and a drop of a solution of methylene violet allowed to run over the film. It is then mounted in Farrant's medium and examined under the microscope for bacilli. As has been stated the bacillus is incapable of forming spores within the body, but if it can make its way into the saliva or excrement and be discharged, spores may readily be formed, so that an

affected animal must remain a source of infection. To rid the premises of this centre of infection it is necessary to burn the carcass, or as some do bury it six or seven feet deep. To bury the carcass is, to my mind, most unsatisfactory, as worms can bring the spores to the surface again. Those who advocate it take for their basis that the organism cannot form spores when oxygen is absent, and that it cannot exist where the temperature is below 12 C, and state that these conditions are found at a depth of six or seven feet. This I do not agree with, as oxygen is not absent, and the temperature not always below 12 C at that depth. Cremation is the only effectual, and certainly the most scientific way of destroying all such carcases. Those who have to slaughter the affected animals or make post-mortem examinations, cannot be too careful and fully alive to the risks they incur. As broken skin offers the surest means of inoculation it is essential to thoroughly examine the hands and arms for such, and if any abrasion be found it would be as well for person to refuse to have anything to do with the animals. Again although the skin seems whole to the eye, it is advisable to take the precaution of dipping the hands and arms in a strong solution of common salt when a scratch, however small, will be felt, and then can be covered with vaseline containing carbolic acid, before handling the carcass.

This, gentlemen, concludes my paper and I trust my effort to interest you in bacteriology to-day may have some measure of success.

EXTRACTS AND NOTES.

NEW VETERINARY COLLEGE, EDINBURGH.

Opening Ceremony.

On the occasion of the opening for the ensuing session of the New Veterinary College, Edinburgh, Professor Williams, the respected Principal of the institute, on Wednesday, September 6th, delivered an address before a large attendance of the students and of prominent citizens of Edinburgh in the Lecture Hall of the College. There was an unusually large turnout of students in anticipation of an important and interesting introductory address by the Principal. Amongst the notable personages present were Lord Provost Russel, General Fremantle (commandant of the troops in Scotland), Miss Burton, Prof. Ivison Macadam, and others

Principal Williams, in moving that Captain Moore, A.V.D., should take the chair, said that that gentleman was one of his "sons," having sat under him as a student. The Chairman introduced Principal Williams to deliver his inaugural address.

Professor Williams, who was received with loud cheers, remarked, at the outset, that it was customary for one in his position to begin his address by giving his students friendly advice, but that on the present occasion he would refrain from so doing, seeing that he had given such counsel on former occasions. He said that a teacher by the earnestness he displayed in his work and by his conduct had generally a great influence upon the work of the students of his class. He desired, in giving his inaugural address, to say, in the first place, something appertaining to the profession, and, in the second place, something appertaining both to the profession and to the public.

A new system.

The students who were there for the first time would be under a new system, because they would require to remain in college for four years before they could present themselves for their final examination. This was a great jump. When he was a student two sessions were considered enough, and when they looked to the men of his time and size—(laughter)—he thought they would admit that in those days they made very fair veterinary surgeons. ("Hear, hear," and applause). Afterwards they extended the curriculum to three years, and he thought that that system had worked well, but now the curriculum was extended to four sessions, and unfortunately he was at variance with those who had fixed that period because he thought that the fourth year time was entirely lost. During the third year the student had only to pass an examination in pathology, and he maintained that this was a premium on laziness. One year was too long for the study of pathology alone. (Applause.) Another objection he had to this extended curriculum was that the incomes to be derived from the practice of the profession were inadequate, considering the time spent at College. (Applause.) He thought that for a man to spend four years at the College, and then to go to a country practice worth £200 or £300, was totally out of proportion to the amount he had spent in College fees. He thoroughly appreciated this new departure if practitioners by their superior abilities could command a good income, but he thought they as a profession might never expect this. If a man thought himself fitted to present himself for the final examination, and pass to the satisfaction of the examiners, he considered a course of three years sufficient in order to enable one in such a position to receive the certificate of the Royal College of Veterinary Surgeons. (Applause.) That day would see the last of the old system, because hereafter candidates for membership of the Royal College must possess an education equal to that of a Master of Arts, and must be prepared to present the same certificates as those who enter the Universities for the medical profession. He thought this education too high for the requirements of a veterinary surgeon. In his opinion dead languages, such as Latin and Greek, were of little use to the profession, although he considered a knowledge of modern languages an advantage. A good deal of knowledge was contained in books of foreign language, and therefore a man who could *parlez-vous*—(loud laughter)—was considered to be an educated man, and one who could mix in the better class of society and study modern literature. (Applause.) He was accordingly of opinion that a knowledge of French or German, or of both, was of far greater usefulness to the veterinary surgeon than an acquaintance with Latin or Greek, leaving matters of agriculture entirely aside. Continuing, Principal Williams said he desired to speak upon matters which were of importance to the profession, as well as to the general public.

Louping-ill in sheep.

In the first place then, a statement had appeared in the public prints regarding louping-ill in sheep. Mr. Klein had stated that he had discovered this to be an infectious disease, but so slightly infectious that a wall, burn, or iron fence was sufficient to arrest the infection. Now, thirteen years ago he investigated louping-ill, and certainly he found a bacillus, or an organism, in the disease. Mr. Klein had reported that he had discovered an organism in the disease, but he did not describe it. Whether it was the same that he (the Professor) had discovered he did not know, but this he knew very well, that this year he happened to be in Argyllshire examining a flock of sheep with the view to investigating whether they had or had not scab. Upon these animals he found some tick—the same organism—that he discovered thirteen years ago. He maintained thirteen years ago that this louping-ill was due to inoculation, and recently so great was the force of the facts brought before him that before he had concluded his investigations he was convinced that the ticks were the intermediate bearers of louping-ill. This disease was not communicated by one sheep to another

but was caused by inoculation by the tick. Where the sheep got the tick he could not say. Some said it was caused by the rank grass, but his impression was that the rankness of the grass had nothing to do with the conveying of the disease to the sheep, but that the grass afforded a cover to the ticks, and these conveyed the disease.

ANTHRAX.

He would now briefly refer to anthrax, which was disturbing the public mind at this time. At Winchester a large number of cattle and horses had been ordered to be killed as having been in contact with animals affected with that disease, and in this connection it had been stated that the owner would be paid half the value of diseased animals and the value of those not affected, the cost to the country being £2000. He could hardly express to them how he felt on the point, because it was the greatest farce that was ever enacted upon the face of the earth. (Applause.) Anthrax was not a contagious disease in the true sense of the word. It could be inoculated from a diseased animal to a healthy one, but, except by inoculation of the virus into the system of a healthy animol through the skin or through the mucous membrane, the disease was non-communicable, and to destroy horses and cows which had been in contact with others suffering from anthrax was simply a waste of public property, and this could only arise from ignorance of the nature of the disease. He spoke advisedly, understanding as he did the responsibility under which he was for the words he uttered.

In dealing with an outbreak of anthrax it was necessary to destroy the carcase of the animal affected before death. If they buried it the ground would be affected with the poison for many years, and Pasteur had proved that after a carcase affected with anthrax had been buried for 12 years the bacillus of anthrax had been brought to the surface by worms. If the Local Authorities, instead of doing as they were at present—destroying animals as having been in contact with diseased animals—provided better apparatus for the destruction of carcases they would be going in the right direction. One gentleman, in a recent issue of *The Lancet*, proposed cremation, and, in his opinion, if Local Authorities were to provide cremators for the destruction of diseased carcases anthrax would very soon disappear. Failing this, and supposing it to be impossible, they should, instead of using lime, which did not properly disinfect, use carbonate of sulphuric acid upon the top of the grass. This would not only destroy the diseased carcase, but also destroy the organism. (Applause.)

NO PLEURO AMONGST CANADIAN CATTLE.

Continuing, the Principal said that he would confine the last portion of his address to a question which was attracting considerable notice. As they were doubtless aware, he had been at war with the Government—(Hear, hear," and loud applause)—of this country, both Whig and Tory—(laughter)—and independent of all politics. (Renewed applause.) He had fought the Government upon this American and Canadian pleuro-pneumonia question. (Loud applause.) He had stood alone, and as a result had been the target of a good deal of abuse and ridicule and some very sneering observations. At the same time, his back was sufficiently broad to bear all these things—(applause)—because he had known that in the end he should be vindicated. ("Hear, hear," and loud applause.) He had seen this so-called pleuro-pneumonia ever since 1879, and every case of so-called pleuro-pneumonia that he had seen had not been that disease at all. He did not deny for a moment that pleuro-pneumonia might have come from the United States, but he simply spoke of what he had seen, and he said that since 1879 he had had hundreds of lungs under examination, and had never yet found one case of pleuro-pneumonia amongst Canadian or American cattle. In connection with the last reported case of the disease alleged to have taken place among Canadian cattle, the Canadian Government was allowed to appoint an expert to examine the lungs condemned as being diseased by the officers of the Board of Agriculture, and they accordingly selected Mr. Hunting, editor of *The Record*. That gentleman was opposed to the idea that the case was not one of pleuro-pneumonia. There was a gentleman present who offered Mr. Hunting drawings and other evidence on the point, but these he declined. He only accepted any evidence that went in support of the pleuro-pneumonia theory. Four lungs were submitted to him, and everybody agreed that there was no appearance of pleuro-pneumonia in three of them, whilst there was some doubt regarding the fourth. The purport of Mr. Hunting's report was that the fourth case was not one of pleuro-pneumonia—notwithstanding the fact that he was committed to the other side of the question. Dr. Sims Woodhead was called upon to make a microscopic examination, and, although his report was rather vague, he had reported that the case was not pleuro-pneumonia. Mr. Klein was also called upon, and he gave a similar opinion. He (the Professor) was called upon to give his opinion on what would be known in history as the *Winnipeg* lung, the lung that keeps the Canadian cattle from coming into this country. The Professor then described diagrams showing the nature of the disease. The first was one of the Hendon lung, in which he said chronic pleuro-pneumonia was evident. In connection with this case, and with a case that occurred in Dundee about the same time, he gave the Government credit for having traced the animals affected, besides those that were in contact. He next referred his audience to the diagram of the Winnipeg lung, which showed symptoms of recent broncho-pneumonia with pleurisy. This, he said, was the lung condemned, and which kept Canadian cattle out of this country. Continuing, he said that he would have no hesitation in laying these drawings, which were correct in every shape, before any pathologist in the world, and to maintain before the public, no matter what might be said afterwards, that the affection of the Winnipeg lung was simply one of broncho-pneumonia in the earlier stages, and that so far there had been no pleuro-pneumonia traceable to Canada or the United States. (Applause.) He dared say some diplomatist or politician would say—"That is a bold statement, it is uncalled for, and you may damage your case by being too strong." This, however, was his nature. When he believed a thing to be true he could not help expressing his feelings. (Applause.)

One argument used by Mr. Gardner, President of the Board of Agriculture, was that one of the Canadian cattle taken to Lindores, Fifeshire, had communicated the disease to one of the herd there. In replying to this, he had to state that the Canadian and Lindores animals were not in contact for over three or four days, and that pleuro-pneumonia could not be communicated by one animal to another in that time, as six weeks was the usual period of incubation. In all probability the Fife animal had pleuro-pneumonia. Of course he had never seen it, but certainly, according to the evidence and to the history of the case, it was impossible for the Fife animal to contract the disease from the Canadian one, and, further than this, he had no hesitation in asserting that the Canadian animal had not the disease, because he had its lungs in his possession. If the Government of the country said at once that their restrictions on the Canadian trade was for the benefit of the country for fear of contagious disease being introduced to this country—if their action was prompted by the desire to destroy the slightest possible chance of contagious disease being introduced to the country by prohibiting the landing of foreign animals—whether they came from the Continent

of Europe, from Canada, from the United States, or from any other country—he would support them through thick and through thin, notwithstanding the fact that the farmers of this country are suffering from the want of Canadian cattle, which were the cattle that paid best; but never for a moment would he support the position taken up by them on a wrong foundation. (Applause.) He distinctly stated that Mr. Gardner and his advisers were proceeding on a wrong foundation by preventing the landing of cattle which ought to be allowed to land, and which benefited the farmers of this country. For these reasons he could not help speaking out most strongly against this very great injustice. (Applause.)

On the motion of General Fremantle, a hearty vote of thanks was awarded Principal Williams, and on a call by the Lord Provost, a similar compliment was passed to the Chairman.—*Dundee Courier*

ROYAL (DICK) VETERINARY COLLEGE.

Tuberculosis and Compensation.

The 71st winter session of this college was opened yesterday, when Professor Chiene delivered the introductory lecture.

Lord Provost Russell occupied the chair, and among those present were Professors Dewar, Aitken, Mettam, Thomson, and Baird; Messrs. Finlay Dun, Rutherford and Fairbairn, Edinburgh; R. Reid, Cupar; Macfarlane, Greenock; Macfarlane, Donne; Edwards, Chester; Yates, Longton; Simcocks, Drogheda; Hingzies, Lochgelly; Hepburn, Milnathort; Peddie, Perth; Mr. Fabritius State veterinary surgeon of Finland; Councillors Cranston and Waterston; ex-Bailie Turnbull; ex-Councillor Drybrough; and Messrs. Stockman and Whitecross.

The chairman said the college had proved a very important factor in medical education in Edinburgh, and had conduced to the training of many men who had been useful in the world, and who had brought credit to themselves and distinction to the College and the City in which it was placed. He was glad to be able to say that the College was as prosperous as ever, and its success appeared to be increasing. They were honoured and fortunate in securing Professor Chiene to inaugurate the session. (Applause.)

Professor Chiene after pointing out that kindness was a necessity in a veterinary surgeon, said that their patients were to a certain extent like children. They could not tell the surgeon what was wrong, and he had to gain the confidence of the animals by kindness. Any pain inflicted was followed by a loss of confidence on the part of the animal. His main reason for being present was to intensify as far as he could the close relation of their work and his. (Applause.) He would take as an illustration the most important zoogenous disease, by that term meaning a disease that could be transmitted from man to animal and vice versa. More deaths occurred from tuberculosis in this country than from all the zymotic diseases together. It was so infectious that many desired to have it scheduled under the Notification Act. During the past five and a half years one million and a half sheep had been killed, and not one had been found to suffer from tuberculosis. That was to some extent accounted for by the outdoor life led by sheep, and in that connection he would mention that in Edinburgh a greater number of cows were confined in byres than in any other town in the country. The International Congress in Paris in 1889 was of opinion that all tubercular carcases were unfit for human food, however slight the evidence of the disease might be. There was now a Royal Commission considering the whole question, and he looked forward with interest to the report which would shortly appear. Tuberculosis could be to a certain extent prevented by improving dwelling houses and byres; by the free use of antiseptics; and by properly cooking and steaming meat. Milk was essentially a very important cause of infection, as it was consumed in an uncooked state. He was firmly of opinion that the only safeguard lay in frequent inspection by skilled inspectors. (Hear, hear, and applause.) The matter must be placed entirely in the hands of the veterinary profession. As the college had led the van under William Dick in systematic veterinary instruction, so the time had now come when they must have originating from the College a diploma in veterinary hygiene analogous to the diploma or degree in public health which now stamped the medical officer of health throughout the country. Edinburgh and Glasgow had Acts enabling them to seize diseased animals; but they would not succeed while working singly: they must get an Act for the whole of Scotland. The Act of 1891 had been unsuccessful on account of the difficulty of diagnosing and the want of proper compensation. He did not think the clause in the Scottish Bill before Sir George Trevelyan went far enough in the matter of compensation. The expense of adequate compensation, he contended, was a flea-bite compared with the expense of the disease itself. The average annual expense connected with scarlatina and diphtheria for the years 1887-91 was £20,000. Compensation, he held, had practically stamped out pleuropneumonia, although he admitted the good done by inoculation. When adequate compensation was granted, the community as a whole must pay their share of the burden. The Professor concluded by showing the necessity for a more rapid distribution, and if needful, the sterilising of milk.

Principal Walley proposed a vote of thanks to the lecturer, and the proceedings thereafter terminated.

CORRESPONDENCE.

"MILK FEVER OR PARTURIENT APOPLEXY."

Sir,

In reply to Mr. Thompson's letter under the above heading I beg to say that I both read and understood, as far as possible, his remarks on "milk fever" but I certainly placed my own construction upon them. He would have us believe that "the elements which enter into the composition of colostrum are thrown upon the circulatory system, acting as a foreign body, and further *increasing* the already irritated nervous centres (whatever that may mean) causing the peculiar wild excitement etc."

Now if the elements of colostrum can produce such effects as Mr. Thompson describes, I take it they must escape from the blood and reach the nervous centres mentioned, which process may be fairly described by the words "absorption of colostrum," as colostrum consists of its elements. But it was because I entirely disagreed with Mr. Thompson's physiology of secretion that I used the words of which he complains. Parturition is a physiological function, and the blood of a healthy cow during that period, though perhaps hydræmic, is normal. Colostrum, so I was taught, is the "first milk" containing cells, with nuclei, but crowded with fat globules which are either the epithelium that filled the lumen in its resting state fattily degenerated, or else leucocytes that have taken up fat discharged by the epithelium lining the acini.

The constituents of colostrum are derived from healthy blood as such, but it is solely by the elaboration of the secreting gland that colostrum acquires its peculiar character. Suppose the manufacture of colostrum by

the udder to be suddenly stopped; it simply means that there is a less demand for the constituents of normal blood. Holding these views, it is impossible to imagine any toxic qualities in the elements of colostrum until they have obtained their peculiar properties by the physiological action of the udder.

I could not say of Mr. Thompson's theory of elemental colostrum poisoning, that *it stands to reason*, so I construed it to mean "absorption of colostrum," which words, if not literally accurate, seem to comprehend his idea. He says "the loaded elements of colostrum are thrown back on the system," I wonder where they are thrown back from, and what it is that throws them. Mr. Thompson's theory of the collapse of the udder from sudden removal of pressure requires a little examination. The sudden and complete removal of pressure, *e.g.* that of ascitic fluid, is followed by great dilation of vessels and even hæmorrhage. The vessels, with their nerves, being accustomed to support, rapidly becomes congested on its removal. I am not aware that there is any other variety of collapse (except the falling together of the parts) from the removal of pressure, and certainly there are no clinical indications of this condition in cases of "milk fever." A pathological condition would appear, if Mr. Thompson's description were correct, which I have never observed. The udder is lax and flabby; secretion of milk diminished; otherwise it is normal. Many veterinarians have observed cases of "milk fever" where the calf has not been removed from the cow. To some other source than the elements of colostrum must we look for the cause of "milk fever."

I consider it just as reasonable to say that if the excretion of fæces could be normally performed we should have no "milk fever" as to say that if the functions of the udder were maintained such would be the case.

I am very sorry Mr. Thompson was not present at the meeting in Manchester as much of your valuable space, Mr. Editor, for which I thank you in anticipation, would then have been conserved.

ROBERT BARRON, M.R.C.V.S.

SIR,

Mr. Barron, speaking on the above subject at the National Veterinary Association, (page 90 of the proceedings), said, "With regard to what Mr. M. Connell says, that it is due to removing the milk from the udder at once, it is a curious fact that when the calf is left with the cow they have milk fever." "That rather disproves Mr. M'Connell's idea." Mr. Barron here takes a quite erroneous view of my contention. I have had several cases of 'milk fever' where the calf was not removed from the cow, in fact the last one I had was a case in point. The calf being simply allowed to stay with the cow will *not* prevent milk fever, but if the calf is allowed to run with the cow for three days after calving and *no* milk is taken from her except what the calf requires, then I say, if such practice was universal we would *never* see a case of milk fever—equally certain am I that we would *never* see a case where the calves are removed at birth could we ensure that all cows for three days after calving, would be as frequently and moderately milked as would have been the case had their calves been allowed to suck.

I am pleased that I have found an adherent, in the person of Mr. Thompson, of Aspatria, to my theory of the sudden emptying of the udder being the cause, and cerebral anæmia, the nature of the malady. But I must demur to his idea that the elements of colostrum being left in the blood has anything whatever to do either with the causation or pathology of the disease. Wherein do the elements of colostrum and milk differ so materially, I would like to know, that when the secretion of the former is suppressed there is produced such a grave disease as milk fever, and yet when the secretion of the latter is suddenly stopped—as frequently takes place from various causes—no such disease is forthcoming? Methinks if the elements of colostrum were so dangerous to the cow the poor young delicate calf that drinks the colostrum would have but a poor chance of living.

Though a member of the Investigation Committee appointed by the National Veterinary Association to investigate this disease, I did not send in any report for the second year, and considering the miserable *fiasco* in which the whole thing ended, I am very glad I did not; yet I may be permitted here to state that my further experience of the chloral treatment as set forth in my report of last year, clearly indicates that if properly carried out at least 90 per cent. of all cases treated in the first or second stages will recover.—Yours faithfully,

Wigtown, 11th Sept. 1893. THOS. M. M'CONNELL.

SIR,

Being desirous of gaining as much knowledge of a disease that is so common in this country amongst cows, viz., milk fever. I should be extremely obliged to you Mr. Editor for inserting this, and to Mr. H. Thompson of Aspatria, if he would give me his opinion of the cause of the malady when it attacks a cow or cows that: 1st. The calf has not been removed from. 2nd. The milk not withdrawn from the udder at one time, but in small quantities. (For of late years it has become a general custom amongst cow-keepers, not to remove the whole of the milk—when the calf has been taken away from the mother—but to copy the calf as much as possible.) 3rd. The function of the udder is preserved and the secretion not obviously diminished.

Yours respectfully,

Southsea, H. A. PATTISON, M.R.C.V.S.
Sept. 9th, 1893.

"EVERY MAN HIS OWN VET."

SIR,

It was with great pleasure that I read the letter in last week's *Record* respecting that "unique" advertisement of the Dorset County Council in which they ask for a competent M.R.C.V.S. to give a course of lectures on veterinary subjects, and (a most preposterous idea) to take farmers to see cases and fully explain the treatment of the case in point. This cool request I think "takes the cake," well might my brother vet. exclaim "Good Heavens what next." Now it is self evident from this advertisement that the lectures as delivered in the past (hygienic and physiological) are too theoretical and not of the style likely to suit the farmer, in plain words they wish for a lecturer who will tell the farmer and agriculturist how to avoid the practitioner's fee and become his own vet. instead. As things have got to this pitch I think it high time that we as a profession should join hand in hand to put a stop to these lectures.

If professors from the College and practitioners in general are going in for making every man his own vet., then I from the bottom of my heart pity those poor fellows now entering on their studies at the Royal Veterinary College.

I firmly trust this matter will be brought up for consideration at the various provincial Association meetings.

R. E. L. PENHALE, M.R.C.V.S.

SIR,

I am sure there is scarcely a member of the veterinary profession who does not coincide with the views so forcibly expressed in last week's *Record* by your correspondent Mr. Bennett. I should like to ask you, sir, as one conversant with the Charters, bye-laws, and powers of the Council whether the fact of any member of the College engaging on the terms of the advertisement,

which I see appears in to-day's issue, would be guilty of disgraceful conduct damaging to the interests of our community of sufficient intensity to warrant the removal of his name from the register, and if not whether you, sir, can tell us what act of an individual member is more likely to damage us or bring us lower in the estimation of other learned bodies and the public.—I am, sir, your obedient servant,

"VIS UNITA FORTIOR."

Sept. 9th, 1893.

SIR,

In your last issue is an advertisement headed "The County Council of Dorset," requiring "a fully qualified lecturer who will be required to take the class to *see disease and fully explain the treatment* of the case in point."

I have given lectures under two technical education committees and trust I have imparted useful imformation to my pupils, but never have I attempted to deceive them by suggesting there was a short and easy way for amateurs to practice the arts of medicine and surgery. I have always limited my tuition in that direction to telling them what to do in cases of emergency, until the veterinary surgeon arrives. I think we can find plenty to lecture upon without attempting the clinical instruction of men who have not the necessary preliminary knowledge of phyisology and pathology. Such teaching as the Dorset County Council seem to desire can only lead to the manufacture of quacks.

Yours faithfully, A. Z.

BOVINE TUBERCULOSIS.

SIR,

In your issue of July 22nd there is a letter under the above heading couched in courteous terms expressing decided views and no unkindly feeling towards our humble profession. In your last number I notice an advertisement emanating from the pen of the same writer, Horace Sweete, M.D., D.P.H., Cambs., Senior Physician, Worcester Infirmary; Medical Officer of Health, Droitwich, R.S.D.; County Analyst for Worcester, Hereford, Radnor etc., announcing this gentleman's readiness to give short courses of practical bacteriology of animal diseases to veterinary surgeons. On first perusing the letter I thought it worthy of observation, but in recognition of the evident kindly spirit which prompted it caused me to hope the task of criticising it would be undertaken by someone more capable of expressing our appreciation of the kindness which induced the writer to tell us his reference in the detection of tubercle bacilli and of how your readers assessed the value of his methods. My confrères, like myself, have I hope been enjoying a holiday and allowing pure country or sea air to engage any tubercle bacilli with which they may have been associated or offering their tissues a chance of recruiting *vis vitae* for struggles to come.

In the light of the announcement in your advertisement column it might be possible to regard the letter of the 22nd ult. as a little personal testimonial or agent in advance; and as one interested in veterinary education and valuing highly a sound knowledge of practical bacteriology, I hope I may not be trespassing beyond the bounds of good taste by asking Dr. Sweete a few questions regarding the statements of his letter.

I can quite understand some persons searching for bacillus tuberculosis in phthisical sputa for hours and not finding it, but the latter part of the sentence is less explicit, and yet cultivated in sterilised nutrient bouillon has at the proper temperature produced a large crop. We are left to imagine of what—tubercle bacilli or putrefactive organisms.

Dr. Sweete then goes on to say he enjoys opportunities for taking samples for cultivation, and always makes a practice of taking a cultivation of fresh blood of the animal as well as of the spleen, but the doctor omits to say what is the result of this cultivation which *he always makes* and on this point I should like to be informed.

Further is the statement that in both tuberculosis and swine fever the characteristic bacillus will be found in the blood; I presume we are to understand that he meant the bacillus characteristic of each disease. It is easy to make such a statement, but Dr. Sweete does not say in his advertisement that he will demonstrate how this is done, though the impression is that examination of blood, spleen or flesh by the cultivation method is the crucial means of proving whether an animal is tuberculous or affected with swine fever.

Nothing is mentioned as to how long after seeding, the characteristic bacilli takes to grow so as to be recognisable, or what effect any delay for that purpose would have on a carcase awaiting the result of this inspection.

A little further light on these points will, I am sure, be very acceptable, and if full and satisfactory will doubtless soon fill the class of practical bacteriology.

No class of the community has manifested more interest in bacteriology than the veterinary, and we are always grateful to members of any learned body who will help us in this matter, and I feel sure that coming from one professing an exact science such as chemistry, and having extensive clinical knowledge as a hospital physician, it should be valuable in the highest degree.

ESSE QUAM VIDERI.

Sept. 9th, 1893.

PATENT SHOES—PROFESSIONAL APATHY.

SIR,

In your issue for September 9th, is an account of the last meeting of the Midland Association, at which an expanding shoe bearing my name was exhibited by Mr. Olver.

Under misapprehension this shoe is spoken of as "a patent." I need hardly say that this is an error, it is not patented nor likely to be. It is fully described in a back number of Prof. M'Fadyean's Journal.

At the above meeting Mr. Malcolm expressed my views when he said how difficult I found it to obtain the result of trials of recommended methods of treatment; but he might have gone a step further, and have said how difficult it was to induce a man to depart from the beaten path and try something fresh. Owing to a combination of these causes an operation for which, in all probability, there is a great future, is practically held back from the profession, because those who have tried it have not published their results. I allude to the operation for Laminitis described by me at the Newcastle meeting of the National Association in 1887.

Evidence is collecting to show that even feet disorganised by laminitis may be restored to their normal shape, which is more than the most sanguine could have expected.

Should these lines meet the eye of the gentlemen whose names are now before me, I hope they may stimulate them to place on record the valuable observations they have made.

Aldershot, FRED SMITH.
13th September, 1893.

(Several communications are unavoidably held over.)

COMMUNICATIONS, BOOKS, AND PAPERS RECEIVED:—Profs. McCall, Walley; Capt. F. Smith; Messrs. H. A. Pattison, R. J. Dawson, T. M. McConnell, W. A. Hancock, R. Barron, R. E. L. Penhale, J. R. Cox, F. G. Heath, R. G. Gillard; "Esse Quam Videri," "Vis Unita Fortior," "Madras Times," "Dundee Courier."